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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/761,594	01/16/2001	Hans-Jurgen Hacke	GR 98 P 4137 P	5815
2431	7590	06/08/2004		
LERNER AND GREENBERG, PA			EXAMINER	
P O BOX 2480			HARAN, JOHN T	
HOLLYWOOD, FL 33022-2480			ART UNIT	PAPER NUMBER
			E733	

DATE MAILED: 06/08/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Advisory Action**

Application No.	Applicant(s)
09/761,594	HACKE ET AL.
Examiner	Art Unit
John T. Haran	1733

--The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

THE REPLY FILED 01 June 2004 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE. Therefore, further action by the applicant is required to avoid abandonment of this application. A proper reply to a final rejection under 37 CFR 1.113 may only be either: (1) a timely filed amendment which places the application in condition for allowance; (2) a timely filed Notice of Appeal (with appeal fee); or (3) a timely filed Request for Continued Examination (RCE) in compliance with 37 CFR 1.114.

**PERIOD FOR REPLY [check either a) or b])**

a)  The period for reply expires 3 months from the mailing date of the final rejection.  
 b)  The period for reply expires on: (1) the mailing date of this Advisory Action, or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection.  
 ONLY CHECK THIS BOX WHEN THE FIRST REPLY WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. See MPEP 706.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee under 37 CFR 1.17(p) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

1.  A Notice of Appeal was filed on \_\_\_\_\_. Appellant's Brief must be filed within the period set forth in 37 CFR 1.192(a), or any extension thereof (37 CFR 1.191(d)), to avoid dismissal of the appeal.  
 2.  The proposed amendment(s) will not be entered because:  
 (a)  they raise new issues that would require further consideration and/or search (see NOTE below);  
 (b)  they raise the issue of new matter (see Note below);  
 (c)  they are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or  
 (d)  they present additional claims without canceling a corresponding number of finally rejected claims.

NOTE: \_\_\_\_\_

3.  Applicant's reply has overcome the following rejection(s): none.  
 4.  Newly proposed or amended claim(s) \_\_\_\_\_ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).  
 5.  The a) affidavit, b) exhibit, or c) request for reconsideration has been considered but does NOT place the application in condition for allowance because: \_\_\_\_\_.  
 6.  The affidavit or exhibit will NOT be considered because it is not directed SOLELY to issues which were newly raised by the Examiner in the final rejection.  
 7.  For purposes of Appeal, the proposed amendment(s) a) will not be entered or b) will be entered and an explanation of how the new or amended claims would be rejected is provided below or appended.

The status of the claim(s) is (or will be) as follows:

Claim(s) allowed: \_\_\_\_\_

Claim(s) objected to: \_\_\_\_\_

Claim(s) rejected: 1-5,13-17 and 19-24.Claim(s) withdrawn from consideration: 11,12,18.

8.  The drawing correction filed on \_\_\_\_\_ is a) approved or b) disapproved by the Examiner.  
 9.  Note the attached Information Disclosure Statement(s) (PTO-1449) Paper No(s). \_\_\_\_\_.  
 10.  Other: \_\_\_\_\_

***Response to Arguments***

Applicant's arguments filed 6/1/04 have been fully considered but they are not persuasive.

The specification indicates that the object of the invention is to provide a semiconductor device in chip format and a method for producing it that enables comparatively good mechanical decoupling from a printed circuit board when the semiconductor component is soldered to the printed circuit board. In other words the object is to provide a better mechanical decoupling than the devices of the admitted prior art, namely EP 0734059 (Akagawa et al). The only difference between the device of the Akagawa et al and the device of claim 1 or the device made by the method of claim 3 is that the present invention has conductive material with an elasticity in the openings of the second insulating layer and small balls having an elasticity and being metallic at least on an outside disposed on the conductive material in each of said openings. This difference results in the desired level of comparatively good mechanical decoupling that is comparatively better than the mechanical decoupling achieved in Akagawa et al wherein solder balls are directly placed in the openings and reflowed to attach the base regions.

The IBM Technical Bulletin provides motivation to use a plastic ball with a metallic coating and outer solder coating in place of pure solder balls because it responds better to thermal stress. It is inherent that the plastic ball would have an elasticity. Akram provides motivation to connect the balls to the base regions via a conductive adhesive instead of soldering as such can be used interchangeably. It is

inherent that the conductive adhesive would have an elasticity. It is noted that both the IBM Technical Bulletin and Akram are cited as examples that the teachings relied upon are well known and conventional.

The method and device of Akagawa et al modified as suggested by the IBM Technical Bulletin and Akram result in the same device and method claimed in the present invention. One skilled in the art would have readily appreciated that the semiconductor component obtained from the method of Akagawa et al, as modified above, is capable of being soldered to a printed circuit board, in light of the fact that the balls have an outer layer of solder. While the claims do state that the thickness of the second insulating layer, the elasticity of the conductive material, and the elasticity of the small balls are selected for obtaining a desired level of comparatively good mechanical decoupling, the product of Akagawa et al, as modified above, has the various claimed properties for the second insulating layer, conductive material, and the small balls. Whether specifically selected for achieving mechanical decoupling or not, one skilled in the art would have readily appreciated that only the expected results would be achieved upon soldering the component to a printed circuit board, i.e. that there will be the desired level of comparatively good mechanical decoupling.

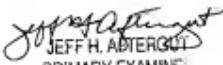
Applicant's arguments focus on the fact that the IBM Technical Bulletin and Akram do not provide the same motivation as Applicant for having conductive adhesive and small balls having at least an outer metallic coating. However, there is ample motivation to modify Akagawa et al to arrive at the claimed invention, even though the motivation is not the same as Applicant. It is clear that the product of Akagawa et al, as

modified, must have the desired level of comparatively good mechanical decoupling since it has the same features as the claimed invention that achieve the desired level of mechanical decoupling, which is better than the prior art (Akagawa): placing conductive material with an elasticity in the openings of the second insulating layer and placing small balls having an elasticity and being metallic at least on an outside on the conductive material in each of said openings. Absent any teachings of unexpected results only the expected results would be achieved: the desired level of comparatively good mechanical decoupling.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **John T. Haran** whose telephone number is **(571) 272-1217**. The examiner can normally be reached on M-Th (8 - 5) and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on (571) 272-1226. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.



JEFF H. ABTEROD  
PRIMARY EXAMINE  
GROUP 1300

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



John T. Haran